

Tubing Heads

Casing Heads

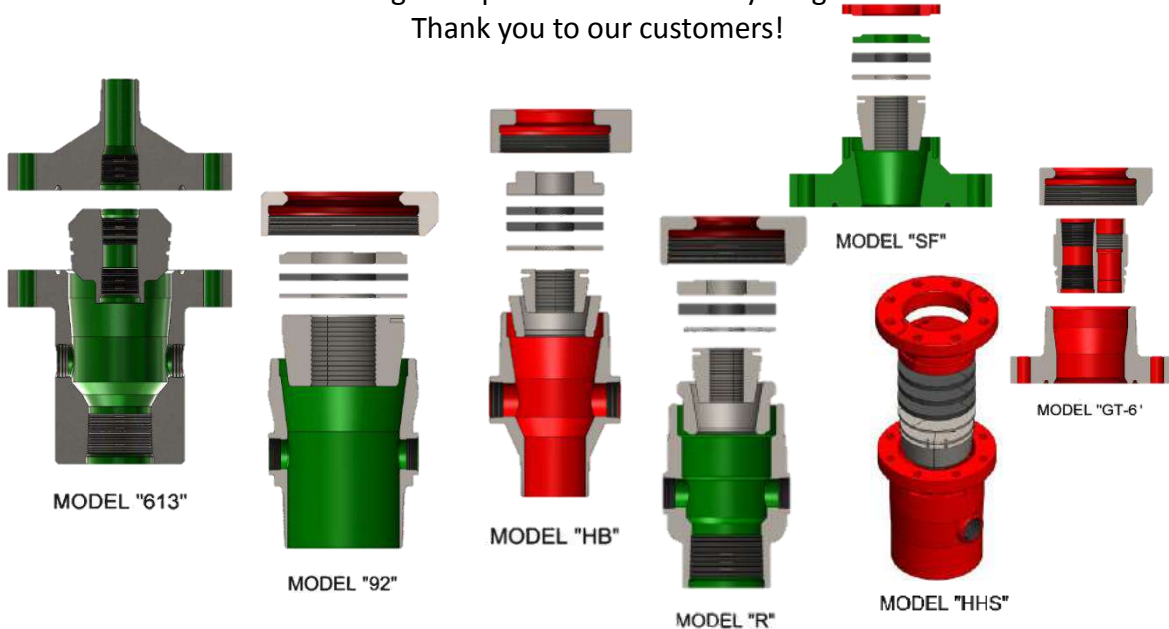


Wellhead Systems Inc.  
Casing and Tubing Heads

## WSI Difference

Wellhead Systems Incorporated (WSI) products have been recognized over decades, for unmatched quality, design and superior customer support and service throughout the globe. WSI claimed their recognition in the market place initially, by developing quality independent threaded and submersible wellheads for low pressure hookups. They expanded this product line to offer three different profiles of wellheads most commonly used in the industry today, all manufactured and tested at our Hill City, Kansas facility. New designs and pressure ratings of up to 15K flanged wellhead components have been developed since the inception of the company and today serve not only customers needs in low pressure markets, but customers in need of cross-over components from flanged to Artificial Lift systems. Today, WSI conducts business throughout North America and many international markets spanning the world. While WSI has experienced a significant growth trend, our commitment to the customer's success through our products drives everything that we do.

Thank you to our customers!



## WSI Quality Features

- Largest Product Line in Industry
- Profile designs include:
  - Larkin
  - Hercules
  - Hinderliter
- 100% product I.D. & full traceability on every permanent wellhead plate
- Special "One-Off" Designs
- NACE Options
- Largest Selection of Accessories
- Corrosion Resistant Materials & Coatings
- Environmental Systems
- Parts Interchangeability between models
- Superior Field Service and Training
- Years of Proven Experience

"Make Your Connection with **WSI**"



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## Order Information

### CASING HEAD INFORMATION REQUIRED:

- **Bottom Connection**
  - A. Casing Size
  - B. Type of Connection
    - 1. Thread (Male or Female) 8rd, 10rd, 8V, 10V, 11-1/2V
    - 2. Female Slip Joint (Slip-On Weld)
- **Inner String**
  - A. Casing or Tubing Size
  - B. Type of Suspension
    - 1. Slips
    - 2. Mandrel (Top & Bottom Thread Style)
- **Working Pressure Rating**
  - A. 1500 PSI WP
  - B. 2000 PSI WP
  - C. 3000 PSI WP
  - D. 5000 PSI WP
- **Side Outlets**
  - A. 2" LP (Standard)
  - B. 3" LP (Optional Models Only)
- **Packing/O-Ring Material**
  - A. Nitrile (Standard)
  - B. Other (See Chart on Page 5)

### TUBING HEAD INFORMATION REQUIRED:

- **Bottom Connection**
  - A. Casing Size
  - B. Type of Connection
    - 1. Thread (Male or Female) 8rd, 10rd, 8V, 10V, 11-1/2V
    - 2. Female Slip Joint (Slip-On Weld)
    - 3. Flange Size & Series
- **Inner String**
  - A. Tubing Size
  - B. Type of Suspension
    - 1. Slips
    - 2. Mandrel (Top & Bottom Thread Style)
    - 3. Slip or Threaded Suspension Flange (612 & 613 Only)
- **Working Pressure Rating**
  - A. 1500 PSI WP
  - B. 2000 PSI WP
  - C. 3000 PSI WP
  - D. 5000 PSI WP (612 & 613 Models Only)
  - E. 10,000 PSI WP (612 & 613 Models Only)
- **Side Outlets**
  - A. 2" LP (Standard)
  - B. 3" LP (Optional Models Only)
- **Packing/O-Ring Material**
  - A. Nitrile (Standard)
  - B. Other (See Chart on Page 5)

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## Packing Material Chart

### WELLHEAD PACKING, MANDREL O-RING & STRIPPER RUBBER ELASTOMER SELECTION GUIDE

Wellhead Component	Basic Rubber Type	Typical Durometer Hardness	Cure Type	Gas Well Serv.	Max. H <sub>2</sub> S	Max. CO <sub>2</sub>	Max. Service Temp. (w/ H <sub>2</sub> S & CO <sub>2</sub> )	Steam Serv.	Max Service (No H <sub>2</sub> S/CO <sub>2</sub> )
Packing	Nitrile	55-75A	P	NR	2%	●NR	150° F / 65° C	NR	250° F/121° C
Packing	Hydrin®*	60A	P	R	5%	15%	150° F / 65° C	NR	250° F/121° C
Packing	HSN*	65A	P	R	10%	20%	225° F / 107° C	R	325° F/163° C
Packing	Viton®*	80A**	—	NR	20%	5%	200° F / 93° C	R**	400° F/204° C
O-Ring	Nitrile	70A	S	NR	2%	NR	150° F / 65° C	NR	250° F/121° C
O-Ring	Nitrile*	90A***	P	HR	5%	100%	150° F / 65° C	NR	250° F/121° C
O-Ring	Viton®	75A	—	R	20%	5%	200° F / 93° C	R	400° F/204° C
O-Ring	Aflas®*	80A	P	R	35%	15%	300° F / 149° C	HR	450° F/232° C
Stripper Rubber	Nitrile	75A	P	NR	2%	NR	150° F / 65° C	NR	250° F/121° C
Stripper Rubber	HSN*	75A	P	HR	10%	20%	225° F / 107° C	R	325° F/163° C
Stripper Rubber	Hydrin®*	75A	P	R	5%	15%	150° F / 65° C	NR	250° F/121° C

**Legend:** HSN-Highly Saturated Nitrile (also HNBR) ● **P**-Peroxide cure ● **S**-Sulfur cure ● **NR**-Not Recommended  
● **HR**-Highly Recommended ● **R**-Recommended only at/below max. temp. shown

\* Contact Customer Service

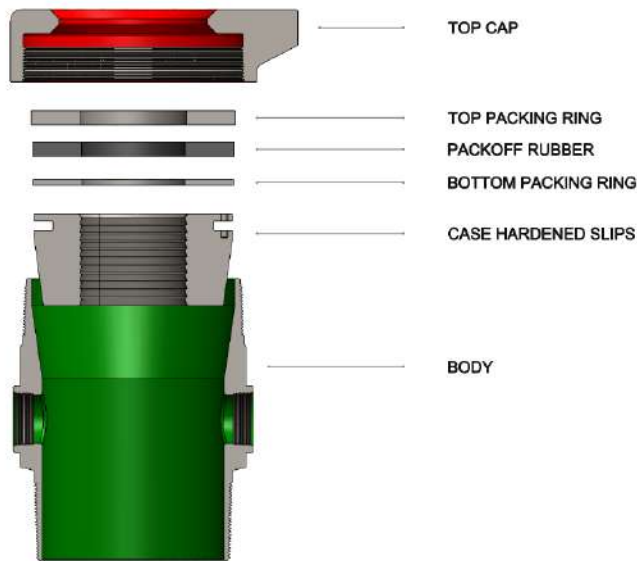
\*\* Should only be used in “bolted gland heads” (i.e. HHS)

\*\*\* For mandrel suspension gas wells & CO<sub>2</sub> injection wells with annulus pressures above 700 PSI. Other elastomers may undergo swelling & blistering (known as “explosive decompression”) after a shut-in gas well is connected to flow line. In gas well applications, mandrel suspension is highly recommended. This elastomer is too rigid for use in packing or stripper rubbers.

**NOTE:** The above information is intended as a **GUIDE**. Field testing may be required to verify the acceptability of optional elastomers, even when the conditions listed in this chart are not exceeded.

Viton is a registered trademark of E.I. Dupont Corp. Hydrin is a registered trademark of B.F. Goodrich Co. Aflas is a registered trademark of Asahi Glass Co. Ltd.

## Model 75



MODEL "75"

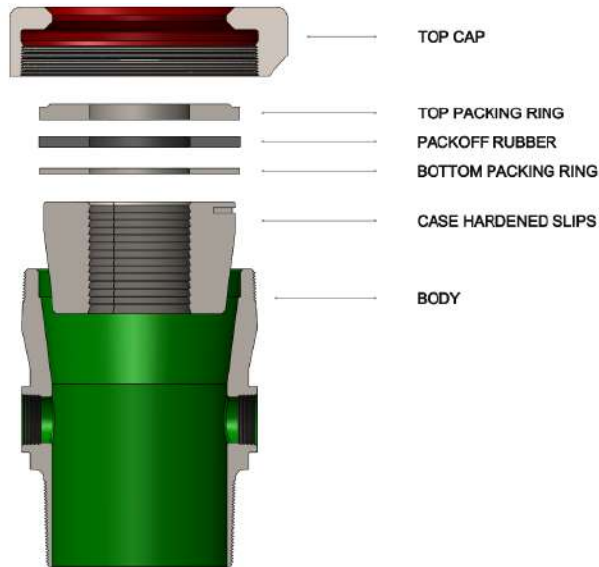
### SPECIFICATIONS

Bottom Thread	8-5/8" O.D. 8rd*
Bottom Connection	Male
Working Pressure	1500 PSI
Test Pressure	3000 PSI
Max. Slip Load (2:1 SF)	100,000 lbs.
Cap Thread	9-5/8" API Modified**
Cap Material	Ductile Iron
Inner String	4-1/2", 5-1/2"
Suspension	Slip or Mandrel
Side Outlet	2" LP
Minimum Bore	8.000"
Body Material	Carbon Steel
Height	13-3/4"
Weight	161 lbs.

\* Other thread styles available upon request of special order

\*\* Caution: WSI recommends using only API modified threaded WSI drilling flanges

## Model 92



MODEL "92"

### SPECIFICATIONS

	7" O.D. 8rd*	7-5/8" O.D. 8rd*	8-5/8" O.D. 8rd*	9-5/8" O.D. 8rd*
<b>Bottom Thread</b>	7" O.D. 8rd*	7-5/8" O.D. 8rd*	8-5/8" O.D. 8rd*	9-5/8" O.D. 8rd*
<b>Bottom Connection</b>	Male, Female, SOW	Male, Female, SOW	Male, Female, SOW	Male, Female, SOW
<b>Working Pressure</b>	2000 & 3000 PSI	2000 & 3000 PSI	2000 & 3000 PSI	2000 & 3000 PSI
<b>Test Pressure</b>	4000 & 6000 PSI	4000 & 6000 PSI	4000 & 6000 PSI	4000 & 6000 PSI
<b>Max. Slip Load (2:1 SF)</b>	176,000 lbs.	176,000 lbs.	176,000 lbs.	160,000 lbs.
<b>Cap Thread</b>	8-5/8" API Mod.**	9-5/8" API Mod.**	10-3/4" API Mod.**	11-3/4" API Mod.**
<b>Cap Material</b>	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
<b>Inner String</b>	2-3/8", 2-7/8", 3-1/2", 4-1/2", 5-1/2"	2-3/8", 2-7/8", 3-1/2", 4-1/2", 5-1/2"	2-3/8" thru 3-1/2", 4-1/2", 5-1/2", 7"	2-3/8" thru 3-1/2", 4-1/2", 5-1/2", 7"
<b>Suspension</b>	Slip or Mandrel	Slip or Mandrel	Slip or Mandrel	Slip or Mandrel
<b>Side Outlet</b>	2" LP	2" LP	2" LP	2" LP
<b>Minimum Bore</b>	6.551"	6.937"	8.000"	8.875"
<b>Body Material</b>	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
<b>Height</b>	14"	14"	14"	14"
<b>Weight</b>	90 lbs.	125 lbs.	137 lbs.	150 lbs.

\* Other thread styles available upon request of special order

\*\* Caution: WSI recommends using only API modified threaded WSI drilling flanges



**Model 92**



**MODEL "92" CASING HEAD  
C-22 PROFILE**

**SPECIFICATIONS**

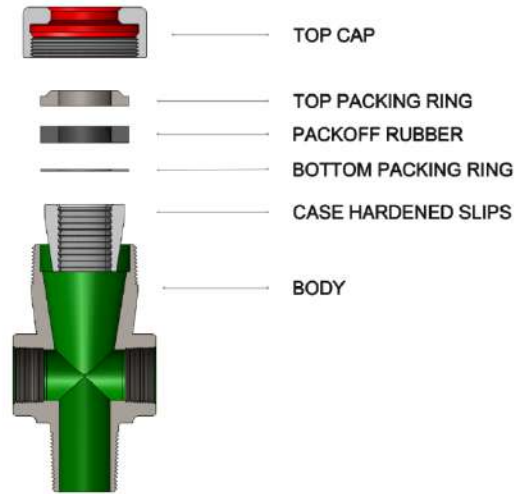
<b>Bottom Thread</b>	10-3/4" O.D. 8rd*	11-3/4" O.D. 8rd*	12-3/4" O.D. 8rd*	13-3/8" O.D. 8rd*
<b>Bottom Connection</b>	Male, Female, SOW	SOW	SOW	SOW
<b>Working Pressure</b>	2000 PSI	2000 PSI	2000 PSI	2000 PSI
<b>Test Pressure</b>	4000 PSI	4000 PSI	4000 PSI	4000 PSI
<b>C-22 Hanger Load</b>	200,000 lbs.	200,000 lbs.	200,000 lbs.	200,000 lbs.
<b>Cap Thread</b>	12-3/4" 8V LP**	16" O.D. 8RD**	16" O.D. 8RD**	16" O.D. 8RD**
<b>Cap Material</b>	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
<b>Inner String</b>	4-1/2", 5-1/2", 7"	4-1/2", 5-1/2", 7", 7-5/8"	4-1/2", 5-1/2", 7", 7-5/8", 8-5/8"	4-1/2", 5-1/2", 7", 7-5/8", 8-5/8", 9-5/8"
<b>Suspension</b>	Slip or Mandrel	Slip or Mandrel	Slip or Mandrel	Slip or Mandrel
<b>Side Outlet</b>	2" LP	2" LP	2" LP	2" LP
<b>Minimum Bore</b>	9.922"	10.875"	12.000"	12.969"
<b>Body Material</b>	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
<b>Height</b>	16"	19"	19"	19"
<b>Weight</b>	175 lbs.	450 lbs.	440 lbs.	430 lbs.

\* Other thread styles available upon request of special order

\*\* Caution: WSI recommends using only WSI drilling flanges



## Model X



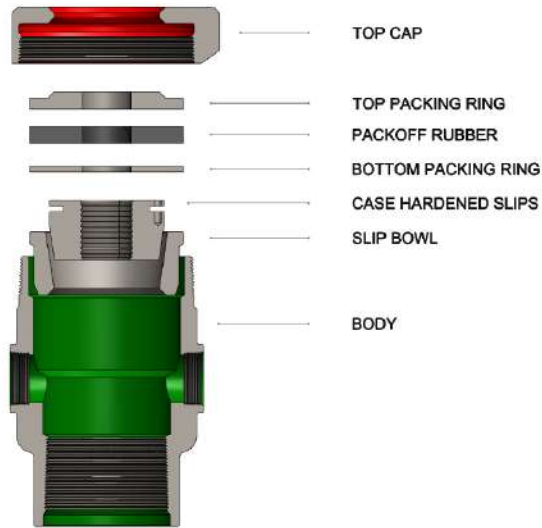
MODEL "X"

SPECIFICATIONS	
Bottom Thread	2-7/8" EUE 8rd Male *
Bottom Connection	Male
Working Pressure	2500 PSI
Test Pressure	4000 PSI
Max. Slip Load (2:1 SF)	35,000 lbs.
Cap Thread	4" 8V
Cap Material	Carbon Steel
Inner String	3/4", 1", 1-1/4", 1-1/2", 2-1/16"
Suspension	Slip or Mandrel
Side Outlet	2" LP
Minimum Bore	2.438"
Body Material	Ductile Iron
Height	10"
Weight	38 lbs.

\* Other thread styles available upon request of special order

## Model K, MK, SK

- Model "K" available with:
  - Mandrel (MK)
  - Stripper Rubber (SK)



MODEL "K"

### SPECIFICATIONS

	4-1/2" O.D. 8rd*	5-1/2" O.D. 8rd*	7" O.D. 8rd*
<b>Bottom Thread</b>	4-1/2" O.D. 8rd*	5-1/2" O.D. 8rd*	7" O.D. 8rd*
<b>Bottom Connection</b>	Male, Female	Male, Female	Male, Female
<b>Working Pressure</b>	1500 PSI	1500 PSI	1500 PSI
<b>Test Pressure</b>	3000 PSI	3000 PSI	3000 PSI
<b>Max. Slip Load (2:1 SF)</b>	65,000 lbs.	65,000 lbs.	65,000 lbs.
<b>Cap Thread</b>	7-5/8" API Mod.**	7-5/8" API Mod.**	7-5/8" API Mod.**
<b>Cap Material</b>	Ductile Iron	Ductile Iron	Ductile Iron
<b>Inner String &amp; Stripper Rubber</b>	2-1/16", 2-3/8", & 2-7/8"	2-1/16", 2-3/8", 2-7/8" & 3-1/2"	2-1/16", 2-3/8", 2-7/8" & 3-1/2"
<b>Suspension</b>	Slip or Mandrel	Slip or Mandrel	Slip or Mandrel
<b>Side Outlet</b>	2" LP	2" LP	2" LP
<b>Minimum Bore</b>	4.090"	5.012"	6.456"
<b>Body Material</b>	Carbon Steel	Carbon Steel	Carbon Steel
<b>Height</b>	10-1/8" (SK 14-1/2")	10-1/8" (SK 14-1/2")	10-1/8" (SK 14-1/2")
<b>Weight</b>	65 lbs. (SK 96 lbs.)	65 lbs. (SK 96 lbs.)	65 lbs. (SK 96 lbs.)

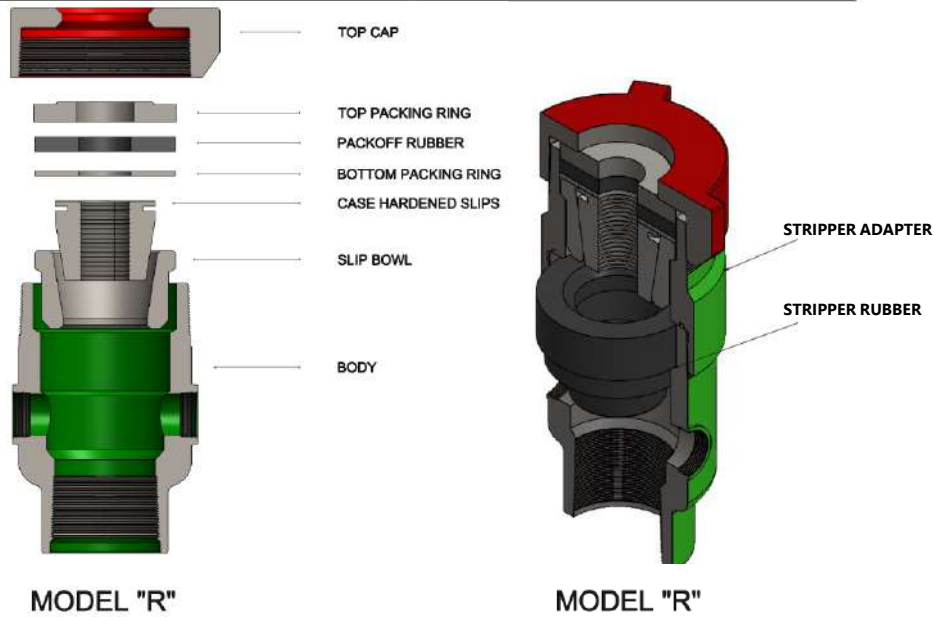
\* Other thread styles available upon request of special order

\*\* Caution: WSI recommends using only API modified threaded WSI drilling flanges



## Model R, MR, SR

- Model "R" available with:
  - Mandrel (MR)
  - Stripper Rubber (SR)
  - Slip-on-weld option
  - 4" & 4-1/2" Liner packages available



### SPECIFICATIONS

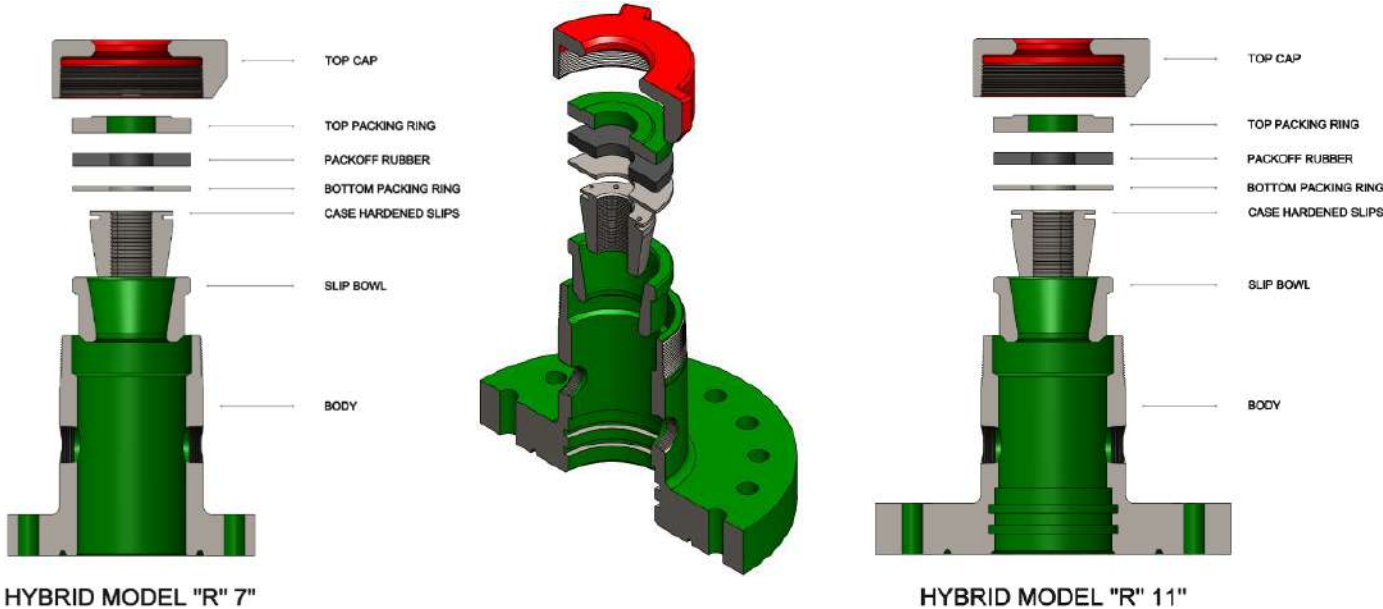
	4-1/2" O.D. 8rd*	5-1/2" O.D. 8rd*	7" O.D. 8rd*
<b>Bottom Thread</b>	4-1/2" O.D. 8rd*	5-1/2" O.D. 8rd*	7" O.D. 8rd*
<b>Bottom Connection</b>	Male, Female, SOW	Male, Female, SOW	Male, Female, SOW
<b>Working Pressure</b>	2000 or 3000 PSI	2000 or 3000 PSI	2000 or 3000 PSI
<b>Test Pressure</b>	4000 & 6000 PSI	4000 & 6000 PSI	4000 & 6000 PSI
<b>Max. Slip Load (2:1 SF)</b>	85,000 lbs.	85,000 lbs.	85,000 lbs.
<b>Cap Thread</b>	8-5/8" API Modified**	8-5/8" API Modified**	8-5/8" API Modified**
<b>Cap Material</b>	Ductile Iron	Ductile Iron	Ductile Iron
<b>Inner String &amp; Stripper Rubber</b>	2-1/16", 2-3/8", & 2-7/8"	2-1/16", 2-3/8", 2-7/8", 3-1/2" & 4"	2-1/16", 2-3/8", 2-7/8", 3-1/2", 4" & 4-1/2"
<b>Suspension</b>	Slip or Mandrel	Slip or Mandrel	Slip or Mandrel
<b>Side Outlet</b>	2" LP	2" LP	2" LP
<b>Minimum Bore</b>	4.090"	5.012"	6.456"
<b>Body Material</b>	Carbon Steel	Carbon Steel	Carbon Steel
<b>Height</b>	13-7/8" (SR 19-5/8")	13-7/8" (SR 19-5/8")	13-7/8" (SR 19-5/8")
<b>Weight</b>	132 lbs. (SR 202 lbs.)	132 lbs. (SR 202 lbs.)	132 lbs. (SR 202 lbs.)

\* Other thread styles available upon request of special order

\*\* Caution: WSI recommends using only API modified threaded WSI drilling flanges



## Hybrid Model R7 & R11



HYBRID MODEL "R" 7"

HYBRID MODEL "R" 11"

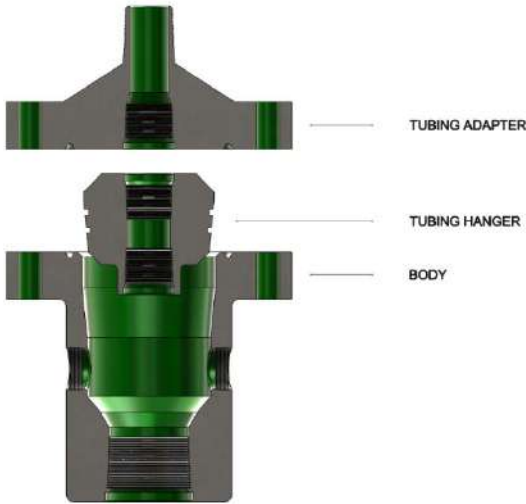
### SPECIFICATIONS

<b>Bottom Flange</b>	7-1/16" 2/3M DD	7-1/16" 3M	11" 3M
<b>Bottom Connection</b>	API 6A	API 6A	API 6A
<b>Working Pressure</b>	2000 PSI	3000 PSI	3000 PSI
<b>Test Pressure</b>	4000 PSI	6000 PSI	6000 PSI
<b>Max. Slip Load (2:1 SF)</b>	85,000 lbs.	85,000 lbs.	85,000 lbs.
<b>Cap Thread</b>	8-5/8" API Modified	8-5/8" API Modified	8-5/8" API Modified
<b>Cap Material</b>	Ductile Iron	Ductile Iron	Ductile Iron
<b>Inner String &amp; * Stripper Rubber</b>	2-1/16", 2-3/8", 2-7/8", 3-1/2", 4", & 4-1/2"	2-1/16", 2-3/8", 2-7/8", 3-1/2", 4", & 4-1/2"	2-1/16", 2-3/8", 2-7/8", 3-1/2", 4", & 4-1/2"
<b>Suspension</b>	Slips or Mandrel	Slips or Mandrel	Slips or Mandrel
<b>Side Outlet</b>	2" LP	2" LP	2" LP
<b>Minimum Bore</b>	6.551"	6.551"	6.551"
<b>Body Material</b>	Carbon Steel	Carbon Steel	Carbon Steel
<b>Height</b>	19"	19"	19"
<b>Weight</b>	220 lbs.	230 lbs.	340 lbs.

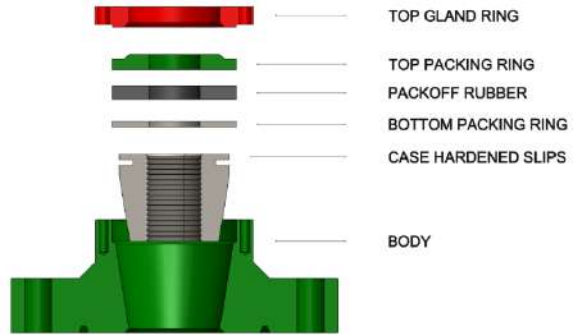
\* Stripper Rubber only available through 3-1/2"



## Model 612 (Larkin Profile)



MODEL "612"

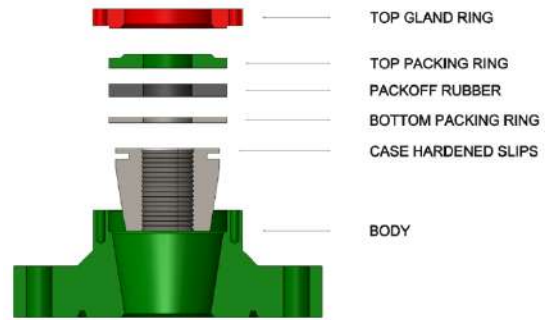
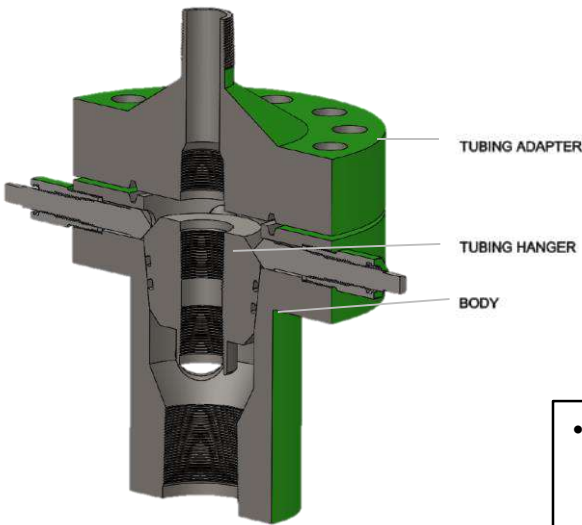


- Model "612" slip type adapter also available in:
  - 10,000 PSI connection
  - 15,000 PSI connection
- Model "612" slip type adapter available in 11"
  - 3000 PSI connection
  - 5000 PSI connection
- **NOTE:** Slip flange top de-rates all heads to 3000 PSI Max.

### SPECIFICATIONS

Bottom Thread	4-1/2" O.D. 8rd	5-1/2" O.D. 8rd	7" O.D. 8rd
Bottom Connection	Female, SOW	Female, SOW	Female, SOW
Working Pressure	2000, 3000 or 5000 PSI	2000, 3000 or 5000 PSI	2000, 3000 or 5000 PSI
Test Pressure	2:1 SF	2:1 SF	2:1 SF
Max. Slip Load (2:1 SF)	85,000 lbs.	85,000 lbs.	85,000 lbs.
Flange Material	Carbon Steel	Carbon Steel	Carbon Steel
Inner String	2-1/16", 2-3/8" & 2-7/8"	2-1/16", 2-3/8", 2-7/8" & 3-1/2"	2-1/16", 2-3/8", 2-7/8" & 3-1/2"
Suspension	Threaded, Slips or Mandrel	Threaded, Slips or Mandrel	Threaded, Slips or Mandrel
Side Outlet	2" LP	2" LP	2" LP
Minimum Bore	4.090"	5.012"	6.551"
Body Material	Carbon Steel	Carbon Steel	Carbon Steel
Height	20-1/4"	20-1/4"	20-1/4"
Weight	350 lbs.	350 lbs.	350 lbs.

## W2W (G2 Profile)



MODEL "SF"

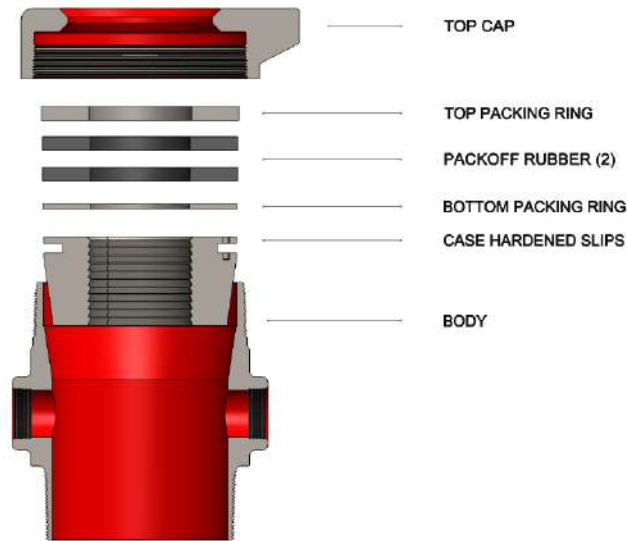
- Model "613" available in:
  - 3,000 PSI
  - 5,000 PSI
- **NOTE:** Slip flange top de-rates all heads to 3000 PSI Max.

### SPECIFICATIONS

	4-1/2" O.D. 8rd	5-1/2" O.D. 8rd	7" O.D. 8rd
<b>Bottom Thread</b>	4-1/2" O.D. 8rd	5-1/2" O.D. 8rd	7" O.D. 8rd
<b>Bottom Connection</b>	Female, SOW	Female, SOW	Female, SOW
<b>Working Pressure</b>	2000, 3000 or 5000 PSI	2000, 3000 or 5000 PSI	2000, 3000 or 5000 PSI
<b>Test Pressure</b>	4000, 6000 or 10,000 PSI	4000, 6000 or 10,000 PSI	4000, 6000 or 10,000 PSI
<b>Max. Slip Load (2:1 SF)</b>	85,000 lbs.	85,000 lbs.	85,000 lbs.
<b>Flange Material</b>	Carbon Steel	Carbon Steel	Carbon Steel
<b>Inner String</b>	2-1/16", 2-3/8" & 2-7/8"	2-1/16", 2-3/8", 2-7/8" & 3-1/2"	2-1/16", 2-3/8", 2-7/8" & 3-1/2"
<b>Suspension</b>	Thread, Slips or Mandrel	Thread, Slips or Mandrel	Thread, Slips or Mandrel
<b>Side Outlet</b>	2" LP	2" LP	2" LP
<b>Minimum Bore</b>	4.090"	5.012"	6.551"
<b>Body Material</b>	Carbon Steel	Carbon Steel	Carbon Steel
<b>Height</b>	20-1/4"	20-1/4"	20-1/4"
<b>Weight</b>	350 lbs.	350 lbs.	350 lbs.



**Model CE**

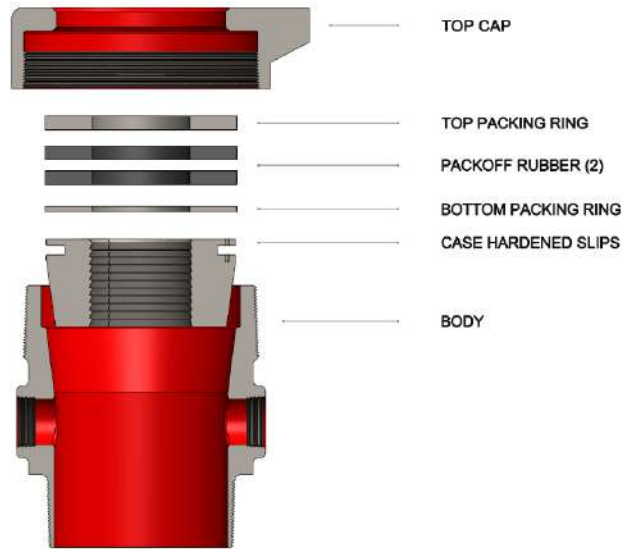


MODEL "CE"

**SPECIFICATIONS**

<b>Bottom Thread</b>	8-5/8" O.D. 8rd
<b>Bottom Connection</b>	Male
<b>Working Pressure</b>	1500 PSI
<b>Test Pressure</b>	3000 PSI
<b>Max. Slip Load (2:1 SF)</b>	90,000 lbs.
<b>Cap Thread</b>	9-5/8" Full API
<b>Cap Material</b>	Ductile Iron
<b>Inner String</b>	4-1/2", 5-1/2"
<b>Suspension</b>	Slip or Mandrel
<b>Side Outlet</b>	2" LP
<b>Minimum Bore</b>	8.000"
<b>Body Material</b>	Ductile Iron
<b>Height</b>	12-3/4"
<b>Weight</b>	159 lbs.

## Model ECA

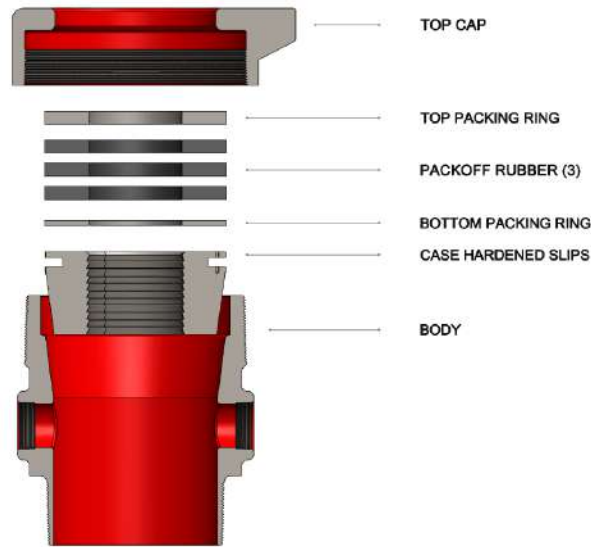


MODEL "ECA"

SPECIFICATIONS	
Bottom Thread	8-5/8" O.D. 8rd
Bottom Connection	Male, Female, SOW
Working Pressure	2000 PSI
Test Pressure	4000 PSI
Max. Slip Load (2:1 SF)	150,000 lbs.
Cap Thread	10-3/4" Full API
Cap Material	Ductile Iron
Inner String	4-1/2", 5-1/2"
Suspension	Slip or Mandrel
Side Outlet	2" LP
Minimum Bore	8.000"
Body Material	Carbon Steel
Height	14"
Weight	137 lbs.



## Model CJ

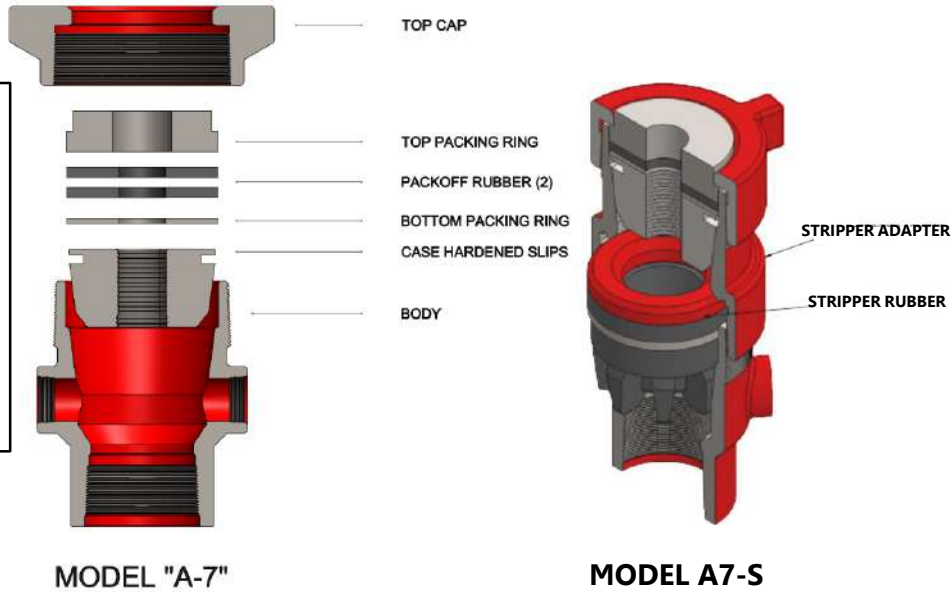


MODEL "CJ"

SPECIFICATIONS	
Bottom Thread	8-5/8" O.D. 8rd
Bottom Connection	Male, Female, SOW
Working Pressure	2000 PSI
Test Pressure	4000 PSI
Max. Slip Load (2:1 SF)	150,000 lbs.
Cap Thread	10-3/4" Full API
Cap Material	Carbon Steel
Inner String	4-1/2", 5-1/2"
Suspension	Slip or Mandrel
Side Outlet	2" LP
Minimum Bore	8.000"
Body Material	Carbon Steel
Height	13"
Weight	145 lbs.

## Model A7, A7S & A7M

- Model "A7", "A7S" & "A7M" available with:
  - Stripper Rubber (A7S)
  - Mandrel (A7M)
  - Dual string configurations avail.
  - Slip-on-weld option
  - 4" & 4-1/2" internals available



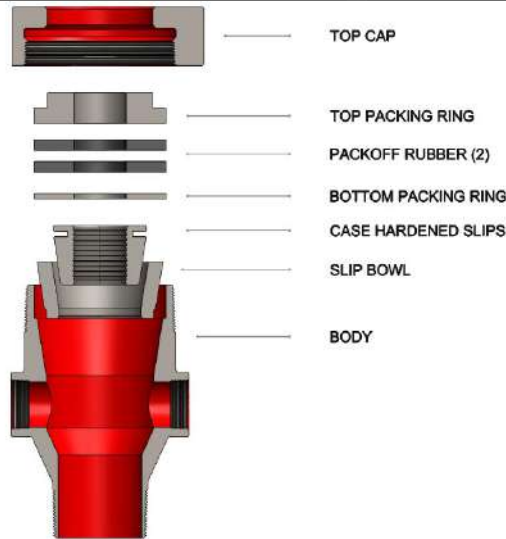
MODEL "A-7"

MODEL A7-S

### SPECIFICATIONS

Bottom Thread	4-1/2" O.D. 8rd	5-1/2" O.D. 8rd	7" O.D. 8rd
Bottom Connection	Male, Female	Male, Female	Male, Female
Working Pressure	2000 PSI	2000 PSI	2000 PSI
Test Pressure	4000 PSI	4000 PSI	4000 PSI
Max. Slip Load (2:1 SF)	85,000 lbs.	85,000 lbs.	85,000 lbs.
Cap Thread	8-5/8" Full API	8-5/8" Full API	8-5/8" Full API
Cap Material	Carbon Steel	Carbon Steel	Carbon Steel
Inner String & Stripper Rubbers	2-3/8" & 2-7/8"	2-3/8", 2-7/8", 3-1/2" & 4"	2-3/8", 2-7/8", 3-1/2", 4" & 4-1/2"
Suspension	Slip or Mandrel	Slip or Mandrel	Slip or Mandrel
Side Outlet	2" LP	2" LP	2" LP
Minimum Bore	4.000"	5.012"	6.551"
Body Material	Carbon Steel	Carbon Steel	Carbon Steel
Height	12-1/2" (A7S 18-1/2")	12-1/2" (A7S 18-1/2")	12-1/2" (A7S 18-1/2")
Weight	105 lbs. (A7S 160 lbs.)	105 lbs. (A7S 160 lbs.)	105 lbs. (A7S 160 lbs.)

## Model HB & HBM

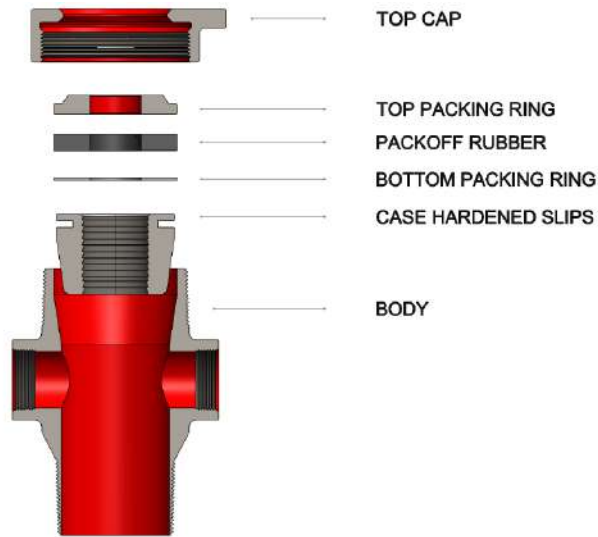


MODEL "HB"

SPECIFICATIONS		
Bottom Thread	4-1/2" O.D. 8rd	5-1/2" O.D. 8rd
Bottom Connection	Male, Female	Male, Female
Working Pressure	1500 PSI	1500 PSI
Test Pressure	3000 PSI	3000 PSI
Max. Slip Load (2:1 SF)	50,000 lbs.	50,000 lbs.
Cap Thread	7" 8rd Full API	7" 8rd Full API
Cap Material	Ductile Iron	Ductile Iron
Inner String	2-3/8", 2-7/8"	2-3/8", 2-7/8"
Suspension	Slip or Mandrel	Slip or Mandrel
Side Outlet	2" LP	2" LP
Minimum Bore	4.090"	5.012"
Body Material	Ductile Iron	Ductile Iron
Height	10"	10"
Weight	75 lbs.	75 lbs.



**Model HFC**



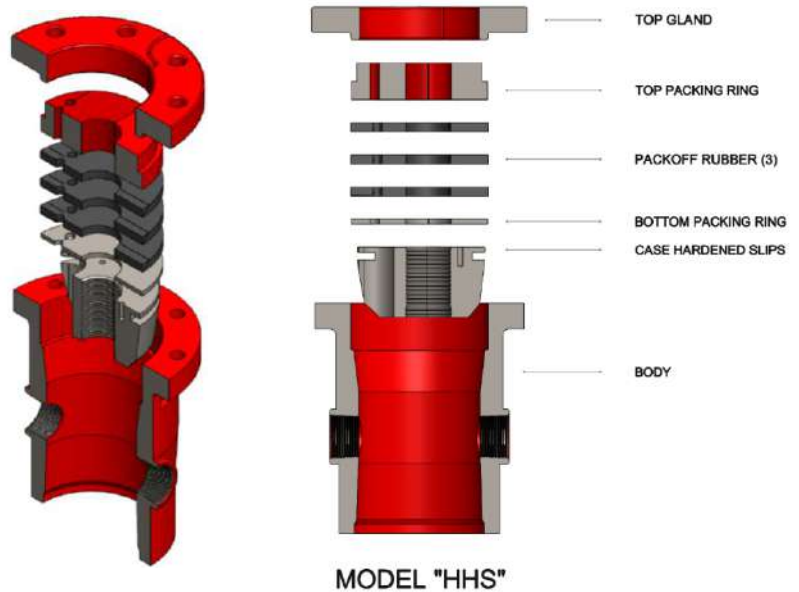
**MODEL "HFC"**

SPECIFICATIONS		
Bottom Thread	4-1/2" O.D. 8rd	7" O.D. 8rd
Bottom Connection	Male, Female	Male, Female
Working Pressure	1000 PSI	1000 PSI
Test Pressure	2000 PSI	2000 PSI
Max. Slip Load (2:1 SF)	36,000 lbs.	36,000 lbs.
Cap Thread	5-3/4" 6-UN	5-3/4" 6-UN
Cap Material	Ductile Iron	Ductile Iron
Inner String	1-1/2", 2-3/8" & 2-7/8"	1-1/2", 2-3/8" & 2-7/8"
Suspension	Slip or Mandrel	Slip or Mandrel
Side Outlet	2" LP	2" LP
Minimum Bore	4.090"	4.090"
Body Material	Ductile Iron	Ductile Iron
Height	11-1/2"	11-1/2"
Weight	48 lbs.	60 lbs.

NOTE: Spider cap also available

## Model HHS

- HHS is ideal where bolted packing gland is preferred
- Split packing gland for ease of installation after tubing and cable have been installed
- Full opening bodies
- Heat treated hinged slips for ease of installation & positive alignment



MODEL "HHS"

### SPECIFICATIONS

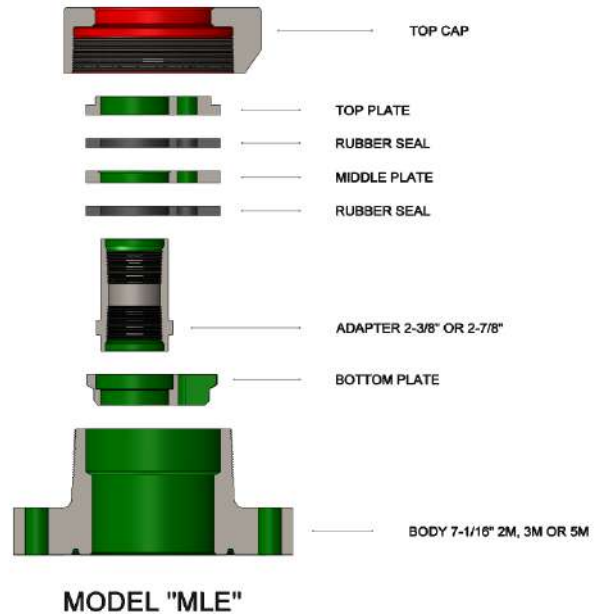
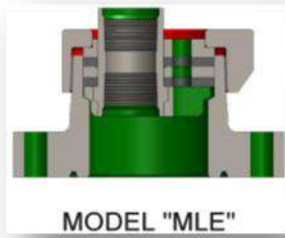
Bottom Thread	4-1/2", 5-1/2" & 7" O.D. 8rd	8-5/8" O.D. 8rd	9-5/8" O.D. 8rd
Bottom Connection	Female	Female	Female
Working Pressure	1500 PSI	1500 PSI	1500 PSI
Test Pressure	3000 PSI	3000 PSI	3000 PSI
Max. Slip Load (2:1 SF)	85,000 lbs.	100,000 lbs.	100,000 lbs.
Cap Flange	Modified Flange	Modified Flange	Modified Flange
Gland Ring Material	Ductile Iron	Ductile Iron	Ductile Iron
Inner String	2-3/8", 2-7/8" & 3-1/2"*	2-3/8", 2-7/8", 3-1/2" 4-1/2" & 5-1/2"	2-3/8", 2-7/8", 3-1/2" 4-1/2" & 5-1/2"
Suspension	Slip or Mandrel	Slip or Mandrel	Slip or Mandrel
Side Outlet	2" LP	2" LP	2" LP
Minimum Bore	4.090"/5.012"/6.551"	8.000"	8.875"
Body Material	Ductile Iron	Carbon Steel	Carbon Steel
Height	14-1/2"	13-1/2"	16"
Weight	145 lbs.	195 lbs.	265 lbs.

\* 3-1/2" available in 7" ONLY

**IMPORTANT NOTE:** Specify cable diameter and style (round/flat) when ordering

## Model MLE

- MLE adapter flange also accepts all model "R" internal components to convert back to beam pump or when running liner packages

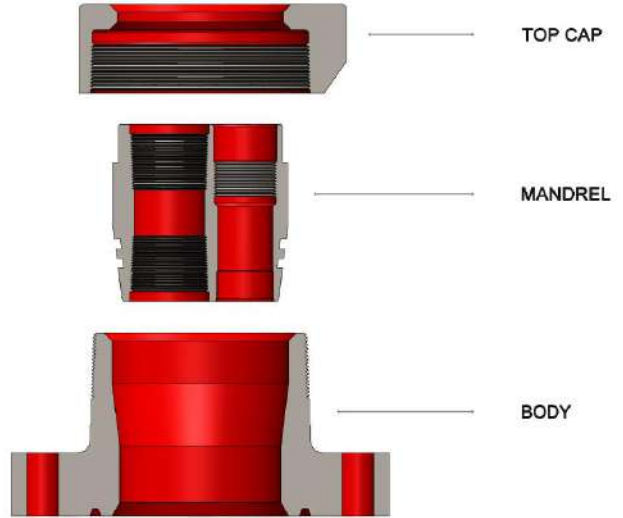


SPECIFICATIONS		
MLE Adapter Flange	7 1/16" API, 3M	7-1/16" API, 5M
Bottom Connection	7-1/16" Flange API	7-1/16" Flange API
Working Pressure	2000 PSI	2000 PSI
Test Pressure	4000 PSI	4000 PSI
Max. Hanger Load (2:1 SF)	85,000 lbs.	85,000 lbs.
Cap Thread	8-5/8" API Modified	8-5/8" API Modified
Cap Material	Ductile Iron	Ductile Iron
Inner String	2-3/8" & 2-7/8"	2-3/8" & 2-7/8"
Suspension	Threaded	Threaded
Side Outlet	N/A	N/A
Minimum Bore	6.551"	6.551"
Body Material	Carbon Steel	Carbon Steel
Height	9"	9"
Weight	120 lbs.	120 lbs.

**IMPORTANT NOTE: SPECIFY CABLE DIAMETER AND STYLE (ROUND/FLAT) WHEN ORDERING**

## Model GT-6

- GT-6 available with mandrel suspension & customer specified penetrator connection
- GT-6 available in the following profiles:
  - PFT
  - QCI
  - BIW
  - Taurus

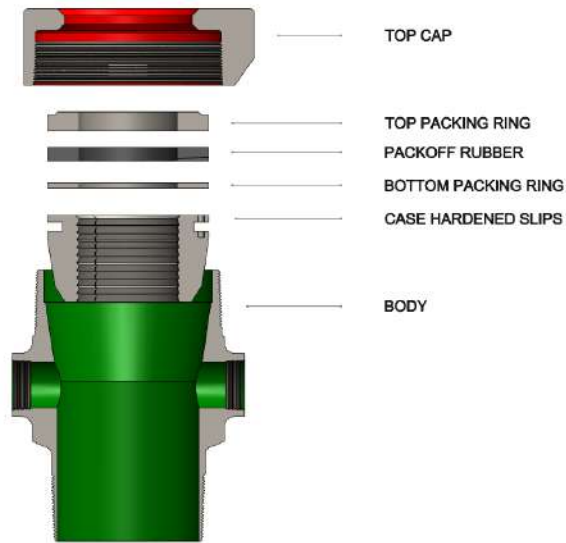


MODEL "GT-6"

SPECIFICATIONS		
GT-6 Adapter Flange	7 1/16" API, 3M	7-1/16" API, 5M
Bottom Connection	7-1/16" Flange API	7-1/16" Flange API
Working Pressure	2000 PSI	2000 PSI
Test Pressure	4000 PSI	4000 PSI
Max. Hanger Load (2:1 SF)	85,000 lbs.	85,000 lbs.
Cap Thread	8-5/8" 8rd API Modified	8-5/8" 8rd API Modified
Cap Material	Ductile Iron	Ductile Iron
Inner String	2-3/8", 2-7/8" & 3-1/2"	2-3/8", 2-7/8" & 3-1/2"
Suspension	Threaded	Threaded
Side Outlet	N/A	N/A
Minimum Bore	6.551"	6.551"
Body Material	Carbon Steel	Carbon Steel
Height	9"	9"
Weight	120 lbs.	120 lbs.



## Model MSR



MODEL "MSR"

SPECIFICATIONS		
Bottom Thread	7" O.D. 8rd	8-5/8" O.D. 8rd
Bottom Connection	Male, Female	Male
Working Pressure	1500 PSI (2000 PSI Avail upon request)	1500 PSI (2000 PSI Avail upon request)
Test Pressure	3000 PSI	3000 PSI
Max. Slip Load (2:1 SF)	90,000 lbs.	90,000 lbs.
Cap Thread	8-5/8" API Mod**	8-5/8" API Mod**
Cap Material	Ductile Iron	Ductile Iron
Inner String	4-1/2", 5-1/2"	4-1/2", 5-1/2"
Suspension	Slip or Mandrel	Slip or Mandrel
Side Outlet	2" LP	2" LP
Minimum Bore	6.551"	6.551"
Body Material	Ductile Iron	Ductile Iron
Height	13-3/4"	13-3/4"
Weight	117 lbs.	119 lbs.

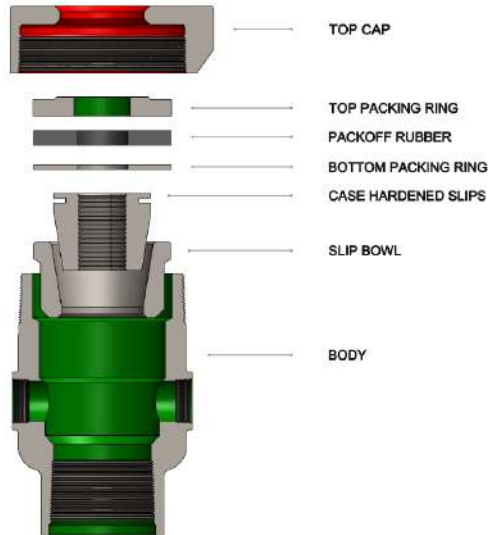
\*\* Caution: WSI recommends using only API modified threaded WSI drilling flanges





## Model HW, HWS

- Utilizes standard 4 in 1 stripper rubber
- Hinderlok™ slips are standard



MODEL "HW"

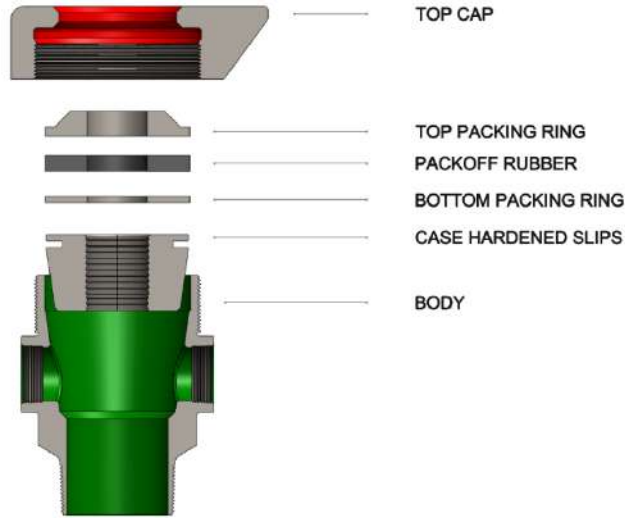
### SPECIFICATIONS

<b>Bottom Thread</b>	4-1/2" O.D. 8rd	5-1/2" O.D. 8rd	7" O.D. 8rd
<b>Bottom Connection</b>	Male, Female	Male, Female	Female
<b>Working Pressure</b>	2000 PSI	2000 PSI	2000 PSI
<b>Test Pressure</b>	4000 PSI	4000 PSI	4000 PSI
<b>Max. Slip Load (2:1 SF)</b>	83,000 lbs.	83,000 lbs.	83,000 lbs.
<b>Cap Thread</b>	8-1/4" 6-UN	8-1/4" 6-UN	8-1/4" 6-UN
<b>Cap Material</b>	Ductile Iron	Ductile Iron	Ductile Iron
<b>Inner String &amp; Stripper Rubbers</b>	2-3/8" & 2-7/8"	2-3/8" & 2-7/8"	2-3/8" & 2-7/8"
<b>Suspension</b>	Slip or Mandrel	Slip or Mandrel	Slip or Mandrel
<b>Side Outlet</b>	2" LP	2" LP	2" LP
<b>Minimum Bore</b>	4.090"	5.012"	6.551"
<b>Body Material</b>	Ductile Iron	Ductile Iron	Ductile Iron
<b>Height</b>	12-1/4" (HWS 18-3/4")	12-1/2" (HWS 19")	12" (HWS 18-1/2")
<b>Weight</b>	130 lbs. (HWS 200 lbs.)	120 lbs. (HWS 190 lbs.)	118 lbs. (HWS 187 lbs.)

Hinderlok™ is a trademark name of Larkin Products, LLC



**Model SW, SWS**



**MODEL "SW"**

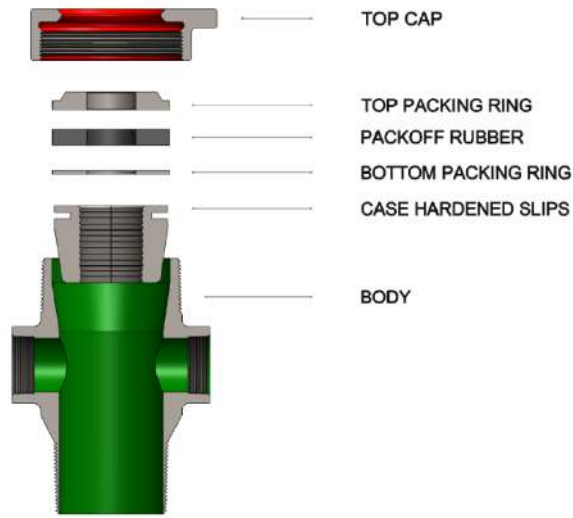
**SPECIFICATIONS**

<b>Bottom Thread</b>	4-1/2" O.D. 8rd	5-1/2" O.D. 8rd
<b>Bottom Connection</b>	Male, Female	Male, Female
<b>Working Pressure</b>	1500 PSI	1500 PSI
<b>Test Pressure</b>	3000 PSI	3000 PSI
<b>Max. Slip Load (2:1 SF)</b>	63,000 lbs.	63,000 lbs.
<b>Cap Thread</b>	6-9/16" 6-UN	6-9/16" 6-UN
<b>Cap Material</b>	Ductile Iron	Ductile Iron
<b>Inner String &amp; Stripper Rubbers</b>	2-3/8" & 2-7/8"	2-3/8" & 2-7/8"
<b>Suspension</b>	Slip or Mandrel	Slip or Mandrel
<b>Side Outlet</b>	2" LP	2" LP
<b>Minimum Bore</b>	4.090"	5.012"
<b>Body Material</b>	Ductile Iron	Ductile Iron
<b>Height</b>	10" (SWS 15")	9-1/4" (SWS 15")
<b>Weight</b>	75 lbs. (SWS 100 lbs.)	75 lbs. (SWS 100 lbs.)

\* Other thread styles available upon request of special order



**Model S, SS**



**MODEL "S"**

**SPECIFICATIONS**

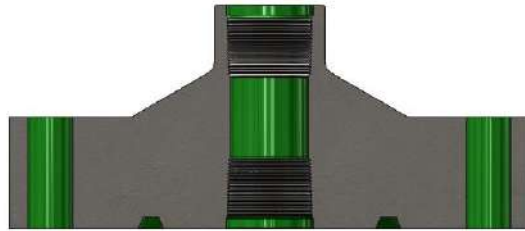
<b>Bottom Thread</b>	4-1/2" O.D. 8rd	5-1/2" O.D. 8rd
<b>Bottom Connection</b>	Male, Female	Male
<b>Working Pressure</b>	1500 PSI	1500 PSI
<b>Test Pressure</b>	3000 PSI	3000 PSI
<b>Max. Slip Load (2:1 SF)</b>	45,000 lbs.	45,000 lbs.
<b>Cap Thread</b>	5-1/2" O.D. 8rd	5-1/2" O.D. 8rd
<b>Cap Material</b>	Ductile Iron	Ductile Iron
<b>Inner String &amp; Stripper Rubbers</b>	1-1/2", 2-3/8" & 2-7/8"	1-1/2", 2-3/8" & 2-7/8"
<b>Suspension</b>	Slip or Mandrel	Slip or Mandrel
<b>Side Outlet</b>	2" LP	2" LP
<b>Minimum Bore</b>	4.090"	4.090"
<b>Body Material</b>	Ductile Iron	Ductile Iron
<b>Height</b>	9-5/8" (SS 14-1/4")	11-1/2" (SS 16-1/8")
<b>Weight</b>	48 lbs. (SS 70 lbs.)	48 lbs. (SS 70 lbs.)

**NOTE:** Spider cap also available

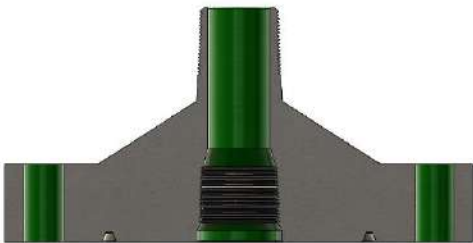
**IMPORTANT NOTE:** Midget Model "S" available upon request



**Tubing Head Adapters B-1, B-5 & B2-P**



**B-5 TUBING HEAD ADAPTER**



**B-1 TUBING HEAD ADAPTER**

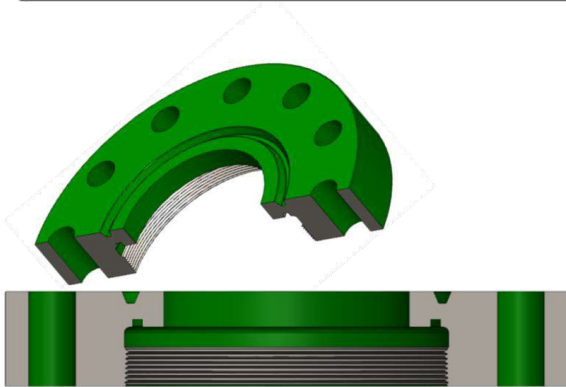


**B2-P TUBING HEAD ADAPTER**

SPECIFICATIONS			
Adapter Model	B-1	B-5	B2-P
Bottom Connection	Flange	Flange	Flange
Working Pressure	2000 PSI thru 10,000 PSI	2000 PSI thru 10,000 PSI	2000 PSI thru 10,000 PSI
Test Pressure	10,000 PSI	10,000 PSI	10,000 PSI
Tubing Sizes	2-3/8" thru 4-1/2"	2-3/8" thru 4-1/2"	2-3/8" thru 4-1/2"
Suspension	Threaded	Threaded	Threaded
Body Material	Alloy Steel	Alloy Steel	Alloy Steel
Max. Height	10"	10"	10"



## Drilling & Companion Flanges



DRILLING FLANGE

### SPECIFICATIONS

7-1/16" 3M W/ 7-5/8" 8RD THREADS

7-1/16" 3M W/ 8-1/4" 6 UN THREADS

7-1/16" 3M W/ 8-5/8" 8RD THREADS

11" 3M W/ 8-5/8" 8RD THREADS

9" 3M W/ 10-3/4" 8RD THREADS

11" 3M W/ 10-3/4" 8RD THREADS

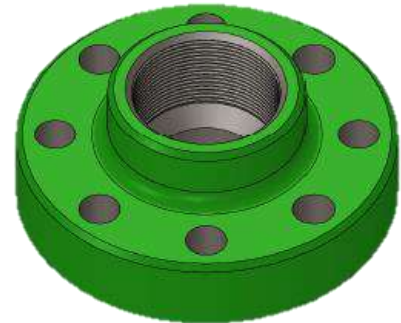
11" 3M W/ 11-3/4" 8RD THREADS

11" 3M W/ 12-3/4" 8RD THREADS

13-5/8" 3M W/ 16" 8RD THREADS

13-5/8" 3M W/ 10-3/4" 8RD THREADS

IMPORTANT NOTE: Double Drilled and 5M available upon request



### SPECIFICATIONS

2-1/16" 5M X 2" LP

2-1/16" 5M X 2-3/8" EUE 8RD

2-9/16" 5M X 2" LP

2-9/16" 5M X 2-3/8" EUE 8RD

2-9/16" 5M X 2-7/8" EUE 8RD

1-13/16" 10M X 2" LP

1-13/16" 10M X 2-3/8" EUE 8RD

## Belled Nipple & Slip Joint Coupling

### BELLED NIPPLE SPECIFICATIONS

3" SOW X 4-1/2" 8RD PIN

4" SOW X 4-1/2" 8RD PIN

4-1/2" SOW X 4-1/2" 8RD PIN

4-1/2" SOW X 5-1/2" 8RD PIN

5-1/2" SOW X 5-1/2" 8RD PIN

7" SOW X 7" 8RD PIN

7-5/8" SOW X 7-5/8" 8RD PIN

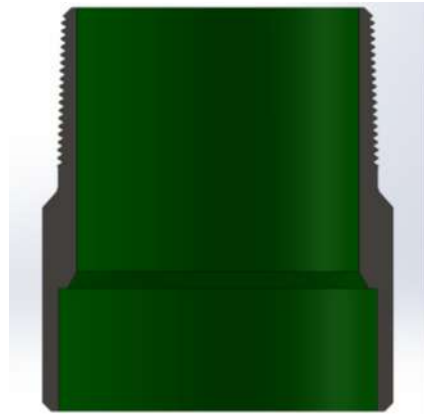
8-5/8" SOW X 8-5/8" 8RD PIN

9-5/8" SOW X 9-5/8" 8RD PIN

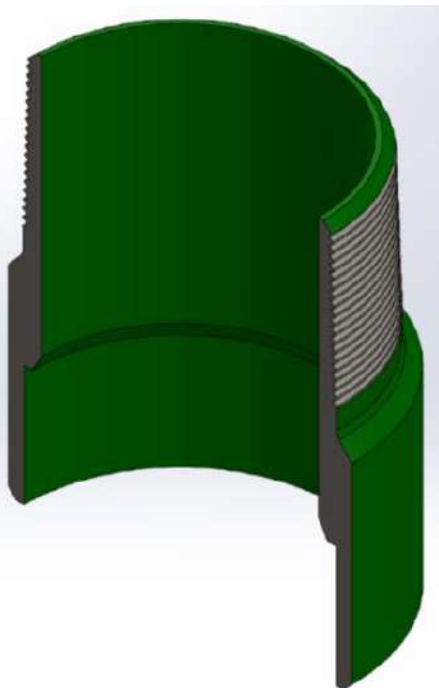
10-3/4" SOW X 10-3/4" 8RD PIN

4" 8RD X 4-1/2" 8RD BUSHING

4-1/2" 8RD X 5-1/2" 8RD BUSHING



**BELLED NIPPLE**



### SLIP JOINT COUPLING SPECIFICATIONS

4-1/2" 8RD SLIP BY THREAD COUPLING

4-1/2" SLIP BY SLIP

5-1/2" 8RD SLIP BY THREAD COUPLING

5-1/2" SLIP BY SLIP

7" 8RD SLIP BY THREAD COUPLING

7" SLIP BY SLIP

8-5/8" 8RD SLIP BY THREAD COUPLING

8-5/8" SLIP BY SLIP

9-5/8" 8RD SLIP BY THREAD COUPLING

9-5/8" SLIP BY SLIP

10-3/4" 8RD SLIP BY THREAD COUPLING

10-3/4" SLIP BY SLIP

11-3/4" 8RD SLIP BY THREAD COUPLING

11-3/4" SLIP BY SLIP

13-3/8" 8RD SLIP BY THREAD COUPLING

13-3/8" SLIP BY SLIP

**DEFINITIONS:** For purposes of this document, the following terms shall have the meaning stated as follows: (A) "WSI": WSI Holdings d/b/a Wellhead Systems, Inc., its subsidiaries, divisions and other affiliates. (B) "WSI Group": WSI, its subsidiaries, divisions and other affiliates and their respective officers, directors, employees and agents, individually and collectively. (C) "Equipment": All equipment, tools, products, materials and supplies and/or merchandise rented or sold by WSI and/or provided in connection with services performed by WSI. (D) "Services": All services furnished by WSI, including services of employees and equipment, tools, trucks and/or other merchandise necessary to perform any such employee's job. (E) "Customer": Party ordering and/or on whose behalf Equipment and/or Services are ordered and/or received from or furnished, rented or sold by WSI. (F) "Claims": All liabilities, losses, claims, fines, penalties, demands, causes of action, proceedings, damages and penalties, including attorney's fees and court costs and expenses.

**TERMS AND CONDITIONS:** Equipment ordered by Customer shall be sold by WSI only on the following terms and conditions of sale ("Sales Terms"). Equipment and Services furnished to Customer by WSI shall be furnished only on the following terms and conditions of Service ("Service Terms"). The Sales Terms and Service Terms shall be referred to herein, individually and collectively, as the "Terms and Conditions". The following provisions are included in each of the applicable Terms and Conditions:

(A) **General:** These Terms and Conditions constitute the entire contract (the "Contract") between the parties and may not be amended except in writing by WSI's authorized representative. Each shipment received by, and Services furnished to, Customer will be only on these Terms and Conditions, notwithstanding different or additional terms and conditions contained on any of Customer's forms, which are hereby objected to and which will not be binding on WSI. The failure of either party to enforce any provision hereof will not constitute a waiver or preclude subsequent enforcement thereof. No partial invalidity of this agreement will affect the remainder. The laws of the State of Texas shall govern the validity, construction, interpretation, and effect of these Terms and Conditions, excluding any choice of law rules which would otherwise require the application of laws of any other jurisdiction, and specifically including any applicable laws governing sanctions or the control of exports. Any dispute relating to this Contract that cannot be resolved by negotiation between Customer and WSI shall be settled by binding arbitration conducted in accordance with the Commercial Arbitration Rules of the American Arbitration Association, as amended by this Contract. The arbitration shall take place in Houston, Texas, USA. The parties agree that this provision, the arbitrator's authority to grant relief, and all post-arbitration proceedings shall be subject to the provisions of this document, the governing law specified herein, the United States Arbitration Act, 9 U.S.C. et seq., and the ABA-AAA Code of Ethics of Arbitrators in Commercial Disputes. The arbitrator shall have no power or authority to make awards or issue orders of any kind except as expressly permitted by this document and the substantive law referenced above, and in no event shall the arbitrator have the authority to make any award that provides for punitive or exemplary damages or attorneys' fees.

(B) **Credit:** Any agreement between WSI and Customer is subject to Customer establishing and maintaining credit satisfactory to WSI. WSI reserves the right to approve or reject the credit of any Customer and to establish credit terms for each Customer. WSI can terminate this Contract or modify credit terms at any time prior to delivery of Equipment or furnishing of Equipment or Service personnel without liability if WSI's assessment of Customer's financial condition changes. WSI reserves the right, prior to making any shipment of Equipment or furnishing of Equipment or Service personnel, to require that Customer furnish security for performance of Customer's obligations. Standard payment terms are net 30 days, except as provided elsewhere herein. All payments, unless otherwise specified, shall be made in U.S. Dollars to the address specified on the invoice without any deductions or setoffs. All currency exchange rate changes, duties, taxes, etc., not specifically included on the face of the quotation and/or invoice shall be paid by Customer. If credit terms are not met, in addition to its other legal rights, WSI may (i) defer or cancel, at its option, further shipments of Equipment or Service personnel and (ii) charge Customer interest at the maximum rate permitted by applicable law on the unpaid balance due. Customer will pay all of WSI's costs, including attorney's fees and court costs, incurred in connection with the collection of past due amounts from Customer.

(C) **NO CONSEQUENTIAL DAMAGES:** WSI WILL NOT BE RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, WHICH SHALL INCLUDE BUT NOT BE LIMITED TO, LOSS OF REVENUE, PROFITS OR ANTICIPATED PROFITS, LOSS OF BUSINESS OPPORTUNITY, LOSS OF PRODUCTION, DAMAGES FOR FAILURE TO MEET DEADLINES, LOSS OF USE, RIG TIME EXPENSES, WELL CONTROL EXPENSES, SUBSURFACE DAMAGE, LOSS OF HOLE, RE-DRILLING EXPENSES, RESERVOIR OR FORMATION DAMAGE, POLLUTION DAMAGE AND/OR WRECK OR DEBRIS REMOVAL EXPENSE ("CONSEQUENTIAL DAMAGES").

(D) **Force Majeure:** WSI will not be liable for any damages, including special and Consequential Damages, caused by events of force majeure or any other occurrences beyond WSI's reasonable control. In the event of any such occurrence, the time for performance will be extended automatically for such reasonable time as is necessary to permit performance hereof.

(E) **DISCLAIMER OF WARRANTIES/SERVICES AND TECHNICAL INFORMATION:** ANY ASSISTANCE IN EQUIPMENT INSTALLATION OR TECHNICAL OR ENGINEERING INFORMATION CONCERNING EQUIPMENT OR SERVICES PROVIDED BY WSI WILL BE ADVISORY ONLY, AT CUSTOMER'S SOLE COST AND ON AN "AS IS" BASIS. NO WARRANTY IS GIVEN WITH RESPECT TO SUCH SERVICES OR INFORMATION AND WSI WILL NOT BE LIABLE FOR ANY CLAIMS ARISING FROM ITS FURNISHING OR CUSTOMER'S USE OF SUCH ASSISTANCE OR INFORMATION.

(F) **Availability:** Customer agrees that, although a price is listed in any Price List, the Equipment listed may or may not be available in all and/or any of WSI's locations.

(G) **Insurance:** The parties agree that the indemnities provided by Customer herein shall be supported either by available insurance or be voluntarily self-insured, in whole or part. Customer will, at its expense, maintain a policy of insurance with limits of at least US\$500,000 insuring Customer's obligations herein, which policies shall be primary and name WSI as additional insured. Customer shall provide WSI with a current certificate of insurance as evidence of such insurance policy.

(H) **Taxes:** All prices and day rates quoted are net of customs fees, duties, and all taxes (including, sales, use, excise or similar taxes and foreign withholding taxes) and Customer shall be responsible for all such amounts.

(I) **Acceptance:** Customer acknowledges and represents that it has reviewed these terms, conditions and the prices in the applicable Price List, including any additional terms and conditions concerning specific Equipment and/or Services where applicable and Customer shall keep itself apprised of all revisions, changes and/or amendments thereto.

(J) **Assignment:** Customer may not assign any rights or obligations hereunder, without WSI's written consent.

(K) **Amendment of Indemnities to Conform to Law:** The indemnities provided by Customer herein shall be limited to the extent necessary for compliance with the laws of the applicable jurisdiction, and to the extent any laws are at variance with the indemnities provided herein, such indemnities shall be deemed to be amended so as to comply with such laws.

(L) **Termination/Survival:** No termination shall relieve Customer of any liability incurred hereunder and the obligations of Customer hereunder shall continue and survive such termination, including all indemnities contained herein which are made expressly for the benefit of WSI Group.

(M) **Acceptance of Terms and Conditions by Customer:** (i) In the event of a conflict between these Terms and Conditions and the provisions of any of Customer's printed or other prepared form of purchase orders, work or service orders, job or delivery tickets, or other similar forms, the provisions of these Terms and Conditions shall govern and control. (ii) Customer objects to the Terms and Conditions contained herein, unless Customer specifically agrees to WSI in writing, to those specific Terms and Conditions which are not acceptable, (a) no later than 7 days after sales confirmation date or invoice date, whichever is earlier, or (b) prior to the time WSI, as per Customer's request, dispatches Equipment or Service personnel to Customer, whichever is earlier. Any conflict between these Terms and Conditions and the provisions of any of Customer's work or service orders, job or delivery tickets, or any other similar forms, shall not constitute an objection in writing by Customer. These Terms and Conditions shall not be altered, changed or modified, except as specifically provided herein or by the written agreement of Customer and WSI, signed by a duly authorized officer or representative of WSI.

(N) **Existing Agreements:** In the event that Customer and the applicable WSI entity supplying the goods and services have entered into a current Master Service Agreement (MSA) the terms and conditions of the MSA shall control.

(O) **Registrations:** Customer hereby authorizes WSI to sign on Customer's behalf any financing statements, financing charge statements or similar documents necessary to perfect any security interest or lien created in WSI's favor in this Contract. Customer hereby waives its right to receive copies of any such statements or documents.

(P) **Confidentiality:** Customer shall strictly maintain the confidentiality of all confidential information concerning WSI, Equipment or Services, which is acquired by or disclosed to Customer. Customer shall not acquire any title, interest or rights in such confidential information pursuant to this Contract.

**SALES TERMS**

1. **LIMITED WARRANTY/DISCLAIMER:** (A) Provided that Customer subjects Equipment only to operating conditions specified by Customer when the order is placed, if any, and operates it in accordance with WSI's written operating instructions, if any, WSI warrants Equipment sold pursuant hereto to be free of defects in material and workmanship for a period of 1 year after the date Equipment is delivered. The above warranty does not apply to: (i) used Equipment or Equipment that has been repaired or worked over; (ii) Equipment that has been modified or subjected to improper handling, storage, installation, operation or maintenance by Customer, including use of unauthorized replacement parts; (iii) component parts not manufactured by WSI, whether purchased by WSI or furnished by Customer, such parts being subject to any applicable manufacturer's warranty; (iv) parts requiring replacement because of normal wear and tear; (v) design on those jobs where WSI prepared drawings, lists or bills of material from designs furnished by others; and (vi) models or samples furnished to Customer as illustrations only of general properties of equipment. This warranty will not apply if Customer, on request by WSI, does not return the defective part to WSI for inspection, freight prepaid. (B) WSI's liability for breach of this warranty is expressly limited to the repair or replacement, at its sole option, of any Equipment or parts of Equipment which prove to be defective during the warranty period. All parts repaired or replaced hereunder shall be repaired or replaced F.O.B. WSI's Plant (i.e. location from which Equipment is shipped). (C) WSI'S OBLIGATION TO REPAIR OR REPLACE CONSTITUTES AGREED AND LIQUIDATED DAMAGES FOR ANY BREACH OF WSI'S WARRANTY. THIS LIMITED EXPRESS WARRANTY, AND THE STATED REMEDIES FOR BREACH THEREOF, SHALL BE IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES FOR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND IN LIEU OF LIABILITY FOR WSI'S NEGLIGENCE OR FAULT. WSI WILL NOT BE RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. (D) Notice of defective products or services must be given in writing to WSI by the Customer. Customer or user of the products must keep the products in unaltered condition for examination by WSI representative. All warranty claims must be made within ten (10) days after discovery, or after such claims should have been discovered, or else be barred from any remedy.

Notwithstanding the preceding, used parts and assemblies – unless rebuilt by WSI and specifically stated otherwise on the quotation or invoice, will carry no warranty. WSI will not apply and be void if the product or Service has been subjected to or suffered misuse, negligence, abuse, neglect, accident, or has not been installed or operated or repaired in accordance with applicable published instructions or has been installed in or operated under more severe conditions than those specified for the particular product or Service or has been altered so as to affect its ability or reliability (except where such alteration has been accomplished with the prior written consent of WSI). Products sold by WSI, but manufactured by another company, will carry only the warranty of the manufacturer, and Customer will rely solely on that warranty. The liability of WSI for any loss or damage resulting to Customer or user or any third party from any defect in any product or Service will not, in any case, exceed the selling price which WSI received from Customer for that product or Service. WSI does not warrant that any of the products sold by it, if used or sold in combination with other equipment or used in the practice of methods or processes, will not, by virtue of such combination or use, infringe patents of others and WSI shall not be liable for any patent infringement arising from, or by reason of, any use or sale of any materials, Equipment or products not of WSI's manufacture or for the use or sale of any materials, Equipment or products or other goods specially made, in whole or in part, to Customer's design specifications.

2. **Return Policy:** Products purchased from WSI may be returned for credit provided the returned item is unused, in new condition, and considered by WSI to be a normally stocked item and WSI gives its written consent to such return at WSI's sole discretion. A minimum restocking fee of 20% of list price plus freight will be charged for inspection and testing on all products returned for credit. No products or other material will be accepted for credit after ninety (90) days from date of purchase.

3. **Cancellation or Changes:** There shall be no cancellations without WSI's written consent at WSI's sole discretion. Any cancellation at Customer's request may result in a cancellation charge equal to (a) if standard Equipment, 20% of, and (b) if nonstandard or special Equipment, 100% of, the full Contract price for Equipment billable by WSI to Customer, before any discount. Purchase orders once placed and accepted can be changed only with WSI's written consent. WSI reserves the right to make substitutions

or design and construction modifications to Equipment or Services provided these changes do not affect the performance of those Equipment or Services.

4. **Prices:** (A) Prices for standard Equipment will be the sales price shown on WSI's current product sales price list (the "Price List"). Prices are subject to change at any time without notice. (B) Requests for quotations for nonstandard Equipment should be sent to the appropriate WSI office. Quoted prices are valid for 30 days after the date of the quotation. Unless otherwise noted on the quotation, validity of the quotation may be extended at the sole option of WSI. (C) Prices are EX WORKS WSI's point of manufacture or one of WSI's stocking points, depending on the location from which the Equipment is shipped. (D) Customer will arrange for shipment of Equipment, at Customer's risk, and pay for all crating, handling and shipping costs. If Customer requests WSI to arrange for shipment or does not furnish WSI with shipping instructions prior to the time Equipment is ready for shipment, WSI will ship Equipment to Customer in a commercially reasonable manner, at Customer's risk, and WSI may charge Customer at WSI's cost, plus 15% or as otherwise agreed to by the parties. (E) Prices are based on WSI's standard procedures and specifications for manufacturing and testing Equipment. Cost of additional labor, materials or outside service for modification of such procedures or specifications requested by Customer will be charged to Customer at WSI's total cost, plus 15%, including direct and indirect cost, such as engineering, labor, overhead and shop supplies. (F) Prices do not include the cost of personnel or equipment required to install the Equipment. Upon request, WSI may provide such personnel and Equipment at its prevailing rates at the time of installation.

5. **DISCLAIMER:** WSI will use reasonable efforts to have Equipment ready for shipment by the date agreed to by WSI, subject to receipt by WSI of all necessary Customer information, including approval of drawings. HOWEVER, WSI ASSUMES NO LIABILITY FOR DAMAGES INCURRED AS A RESULT OF ITS LATE DELIVERY OF EQUIPMENT, REGARDLESS OF CAUSE.

6. **Delivery, Title and Risk of Loss:** (A) Delivery, title and risk of loss will pass to Customer upon the date WSI notifies Customer the Equipment is ready for delivery to Customer or Customer's agent or carrier. EX WORKS WSI's Plant (i.e. location from which Equipment is shipped.) Customer shall be responsible for arranging shipping and for all shipping costs. (B) If WSI has not received shipping instructions at the time of delivery or if Customer requests that WSI store the Equipment until further instruction, WSI shall act as a bailee of such Equipment and may charge Customer WSI's customary storage rates. During any such bailment, Customer will maintain all-risk property insurance on Equipment, at its replacement value, and WSI will not be liable for deterioration of Equipment resulting from atmospheric conditions, acts of God, or other events not within WSI's reasonable control.

7. **CUSTOMER'S INDEMNITY OF WSI GROUP:** IF WSI MANUFACTURES OR MODIFIES EQUIPMENT IN ACCORDANCE WITH CUSTOMER'S PLANS OR SPECIFICATIONS, CUSTOMER WILL DEFEND, INDEMNIFY, RELEASE AND HOLD WSI GROUP HARMLESS FROM AND AGAINST ALL CLAIMS BY CUSTOMER, OR ANY OTHER PERSON OR ENTITY, AGAINST WSI GROUP OF EVERY KIND OR CHARACTER WHATSOEVER, INCLUDING BUT NOT LIMITED TO THOSE CLAIMS ARISING IN CONNECTION WITH BODILY INJURY, DEATH OR DAMAGE TO PROPERTY ARISING OUT OF, DIRECTLY OR INDIRECTLY, OR IN ANY MANNER CONNECTED WITH SUCH EQUIPMENT, INCLUDING ALL CLAIMS RESULTING, EITHER IN WHOLE OR IN PART, FROM WSI GROUPS ALLEGED BREACH OR BREACH OF IMPLIED OR EXPRESSED WARRANTY (EXCEPT AS SPECIFICALLY PROVIDED HEREIN), OR OF THE DOCTRINE OF STRICT LIABILITY IN TORT OF WSI GROUP OR ANY OTHER PERSON OR LEGAL ENTITY FOR WHICH WSI GROUP IN LAW WOULD OTHERWISE BE HELD LIABLE, IRRESPECTIVE OF WHETHER WSI GROUP MAY BE ALLEGED OR PROVEN TO HAVE BEEN NEGLIGENT, (INCLUDING BUT NOT LIMITED TO ACTIVE, PASSIVE, SOLE, JOINT, CONCURRENT OR COMPARATIVE) OR OTHERWISE LEGALLY LIABLE (WITH OR WITHOUT FAULT OR WHETHER STRICTLY LIABLE OR IN BREACH OF ANY WARRANTY) ANY SUCH CLAIMS, WHETHER SUCH CLAIMS ARE BASED ON THEORIES OF CONTRACT LAW, TORT LAW, OR OTHERWISE, DIRECT OR INDIRECT, INCLUDING SPECIAL AND CONSEQUENTIAL DAMAGES FOR BODILY INJURY, DEATH OR PROPERTY DAMAGE OR DESTRUCTION OR ECONOMIC LOSS (INCLUDING, BUT NOT LIMITED TO SUBSURFACE PROPERTY OR PROPERTY RIGHTS), OR ON ACCOUNT OF INFRINGEMENT OF ANY PATENT, DESIGN, COPYRIGHT, OR TRADE NAME OR MARK.

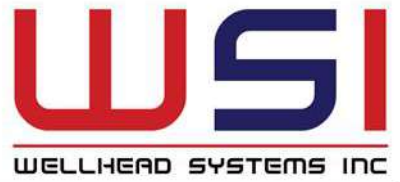
8. **Design and Construction Modification:** WSI may modify the design and method of construction of any Equipment without notice and without incurring any obligation to furnish or install such modification on Equipment previously or subsequently sold.

9. **Compliance with Laws:** Compliance with safety and health laws and regulations relating to the use of any Equipment or products is the sole responsibility of Customer. WSI makes no representations with respect thereto.

10. **Quotations:** Unless otherwise agreed in writing by WSI, quotations furnished by WSI are not intended as and shall not be construed as constituting an offer to Customer, and any quotation of WSI is subject to, and shall not become binding upon WSI until (i) actual receipt by WSI of Customer's written order based on all the Terms and Conditions stated herein, without qualification, within 30 days after the date hereof, and (ii) WSI's written acceptance of such order.

11. **International Sales:** Unless otherwise specified in writing signed by WSI, Equipment sold from a WSI location in the USA for shipment to another country shall in addition to these Terms and Conditions, be governed by the following: (a) all prices and terms of sale are FCA (Incoterms 2000) WSI's factory from which shipment is made; (b) all orders hereunder are subject to WSI's ability to obtain export licenses and other necessary papers within a reasonable period; (c) Customer will furnish all Consular and Custom declarations and will accept and bear all responsibility for penalties resulting from errors or omissions thereon; (d) Customer shall not export or re-export the Equipment or any goods or items which incorporate the Equipment if the export or re-export would violate the export or import laws of the United States or any other applicable jurisdiction; (e) WSI reserves the right to require Customer to provide an irrevocable Letter of Credit with a bank in terms acceptable to WSI or an advance payment deposited into a WSI nominated account; and (e) the United Nations Convention for the International Sale of Goods shall not apply to this agreement.

The Global Wellhead Systems Authority™



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